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Applicant(s): YAMAMOTO, et al.

Serial No.: 10/735,725

Filed: December 16, 2003

For: LIQUID CRYSTAL DISPLAY APPARATUS

Group: 2629

Examiner: J. Pizlall

Conf. No.: 3672

DECLARATION UNDER 37 CFR 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

I, Ikuo HIYAMA, a citizen of Japan, residing at 1-7-7, Higashishikawa, Hitachinaka-shi, Ibaraki 312-0052, Japan, UNEQUIVOCALLY DECLARE THAT:

1. I am familiar with U.S. patent application 10/735,725 (also referred to as "725" hereinafter) filed December 16, 2003, with the inventorship of Tsunenori YAMAMOTO, Sukekazu ARATANI, and Makoto YONEYA;
2. I am a person skilled in the same art, i.e., liquid crystal display technology, as that of U.S. patent application 10/735,725, as evidenced by the following;
3. I graduated from Keio University in 1988 with a bachelor of science (BS) degree in electrical engineering;

4. Thereafter, I graduated from Kelo University in 1990 with a masters of science (MS) degree in electrical engineering;

5. Upon graduation in 1990, I was hired by Hitachi, Ltd., to do work/research in the area of liquid crystal display technology, and have since worked in the liquid crystal display technology area for Hitachi, Ltd. for at least sixteen (16) years;

6. I presently hold the position of Senior Researcher, Unit Leader, of Flat Panel Display Systems Units, Department of Imaging Devices Research, such Unit encompassing work/research in the liquid crystal display technology area for Hitachi, Ltd.;

7. I have read and fully understand the originally-filed disclosure materials (including specification, claims and drawings) of U.S. patent application 10/735,725;

8. I have read and fully understand the 35 U.S.C. 112, first paragraph rejection issued within the '725 application, for example, as issued within the June 16, 2005, Office Action, and specifically, the 35 U.S.C. 112, first paragraph rejection as set forth within pages 3-4 of such Office Action;

9. I fully understand from the above-referenced 35 U.S.C. 112, first paragraph rejection and Office Action text, that the claims (e.g., independent claims 1 and 11, and any claims dependent therefrom) have been rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the "written description" requirement under U.S. patent laws;

10. I fully understand from the above-referenced Office Action, that the 35 U.S.C. 112, first paragraph rejection focuses on amended independent claim 1's limitations of "illumination control means for controlling an illumination start time and

an illumination "on" time of each of the illumination areas of the illumination unit independently, *in response to a result of the comparison of a new display data with a previous display data*" (emphasis added), and/or amended Independent claim 11's limitations of "illumination control means for controlling the light amount adjusting part of the illumination unit *in response to a result of the comparison of a new picture signal with a previous picture signal*, to control a lighting timing and a lighting period of time of each of the plurality of illumination areas of the light source independently" (emphasis added);

11. I understand that, to satisfy the "written description" requirement, a patent disclosure must describe the claimed invention in sufficient detail that one skill in the art can reasonably conclude that the inventors had possession of the claimed Invention;

12. After reading and fully understanding the disclosure of the U.S. patent application 10/735,725, I am of the opinion that such disclosure (at the time of filing) described the claimed invention in sufficient detail that one skill in the art can reasonably conclude that the inventors had possession of the claimed Invention. That is, I (as one skilled in the relevant art) reasonably conclude that the Inventors had possession of the claimed Invention, as supported by the following facts/analysis;

13. First, I note that the '725 disclosure's FIG. 1 and the description related to such FIG., teach that a new display data (new picture signal) and a previous display data (previous picture signal) from the frame memory 111 are inputted to the data emphasis operation circuit 112. Through my knowledge and experience as one skilled in the art, I would expect that when new/previous display data are inputted into a common component (e.g., data emphasis operation circuit 112), such would be

subjected to a comparison operation and a comparison result then used to control something. Indeed, the '725 disclosure's specification page 8, lines 6+ describe that the new display data and previous display data are compared within the data emphasis operation circuit 112, and a comparison result controls a timing adjustment circuit 130.

14. Next, I note that the '725 application's FIG. 8, shows a second embodiment having the new display data (new picture signal) and previous display data (previous picture signal) from the frame memory 111, also inputted to a differing common component, i.e., illumination lighting controller 122. Again, through my knowledge and experience as one skilled in the art, and further buttressed through the above-described comparison with respect to the FIG. 1 embodiment, my understanding (as one skilled in the art) is that such new/previous display data inputted into the common component of the illumination lighting controller 122, would be subjected to a comparison operation within the illumination lighting controller 122, and a comparison result used to control something. The '725 application's specification at page 14, line 4+, describes the "illumination start time and the illumination 'on' time are controlled adaptively" by the "illumination controller 122 as the illumination control means". Further, I note from FIG. 8 that the illumination lighting controller 122's output are labeled "LIGHTING CONTROL SIGNAL FOR ILLUMINATION UNIT", and accordingly, my understanding is that the illumination lighting controller 122's comparison result is ultimately used to control the illumination unit.

15. As further evidence of a comparison within the illumination lighting controller 122, I have read and fully understand, and agree, with the arguments

(reproduced below) set forth by Applicant, for example, beginning at the first full paragraph of page 16 of the September 15, 2006, STATEMENT OF SUBSTANCE AND AMENDMENT, which state:

"As far as Embodiment 2, a skilled artisan would recognize that such comparison must be naturally performed in view of the following descriptions in the specification:

- (1) Page 14, lines 13-15—"the average value of the individual gradation weighted with the number of pixels displayed for the individual areas is estimated in real time". This estimation cannot be performed unless the comparison is performed. It is thus apparent from Embodiment 1 and so on that the "on" time and the start time which are optimal for each individual gradation vary according to the new display data, the corresponding previous display data and the amount of overshoot. Therefore, in order to estimate the average value in real time, the comparison and the calculation of the amount of overshoot have to be performed in or by the illumination lighting controller 122 as in the data emphasis operational circuit 112.
- (2) Page 14, lines 19-23—"the time integral values of the transmission factor for the frame in which the transmission factor changes due to the overshoot drive can be precisely identical to the time interval value of the transmission factor for the frame in which the transmission factor reaches a designated level and stays in a stable state"

The "start" time and the "on" time need to be controlled precisely in order to cause the integrated transmission factor for the frame in which the transmission factor is changed and the integrated transmission factor for the

frame in which the transmission factor is stable to precisely coincide with each other. Further, in order to control the start time and the "on" time precisely, it is apparent that the previous display data before the transmission factor is changed, the new display data after the transmission factor has been changed, and the amount of overshoot due to the comparison of the previous and new data with each other need to be calculated, respectively."

16. From the foregoing, I (as one skilled in the art) reasonably conclude from reading/understanding Applicant's original disclosure materials, that the inventors had possession of the claimed invention at the time of filing the '725 application, and specifically amended independent claim 1's claimed "illumination control means for controlling an illumination start time and an illumination "on" time of each of the illumination areas of the illumination unit independently, *in response to a result of the comparison of a new display data with a previous display data*" (emphasis added), and/or amended independent claim 11's claimed "illumination control means for controlling the light amount adjusting part of the illumination unit *in response to a result of the comparison of a new picture signal with a previous picture signal*, to control a lighting timing and a lighting period of time of each of the plurality of illumination areas of the light source independently" (emphasis added);

The undersigned Declarant declares further that all statements made herein of his/her own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and

that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Ikuo Hiyama
Ikuo HIYAMA

10/23/2006
Date